What is claimed is:

1. A method of manufacturing an oxide thin film,

wherein a supercritical fluid is used as a medium.

2. A method of manufacturing a ferroelectric thin film,

wherein a mixture obtained by dissolving elements of oxide ferroelectric in a supercritical fluid is used as a raw material.

3. A method of manufacturing a ferroelectric thin film,

wherein bubbles are dissolved in amorphous ferroelectric, and then the amorphous ferroelectric is crystallized.

4. The method of manufacturing a ferroelectric thin film as defined in claim 3,

wherein the bubbles are formed from supercritical fluid.

5. A method of manufacturing a ferroelectric thin film,

wherein a low-solubility element is dissolved in a supercritical fluid, and then the dissolved product is added to a ferroelectric raw material.

6. A method of manufacturing a ferroelectric thin film,

wherein a supercritical fluid pressurized at a pressure ranging from a supercritical pressure to four times the supercritical pressure is used as a solvent.

7. The method of manufacturing a ferroelectric thin film as defined in any one of claims 2, 3, 5 and 6,

wherein a ferroelectric thin film is selectively grown only in a desired region by

utilizing difference in characteristics of a material of a previously-patterned substrate.

8. The method of manufacturing a ferroelectric thin film as defined in any one of claims 2, 3, 5 and 6,

wherein a ferroelectric thin film is selectively grown only in a desired region by utilizing difference in surface energy of a previously-patterned substrate.

9. The method of manufacturing a ferroelectric thin film as defined in any one of claims 2, 3, 5 and 6,

wherein a ferroelectric thin film is selectively grown only in a desired region by utilizing difference in surface state of a previously-patterned substrate.

10. The method of manufacturing a ferroelectric thin film as defined in any one of claims 2, 3, 5 and 6,

wherein a ferroelectric thin film is formed only on an electrode metal.

11. A method of manufacturing a ferroelectric thin film,

wherein a solvent obtained by dissolving a sol-gel solution including ferroelectric elements in a supercritical fluid is used.

12. A method of manufacturing a ferroelectric thin film,

wherein a solution obtained by dissolving an oxide including ferroelectric elements in a supercritical fluid is used.

13. A method of manufacturing a ferroelectric thin film,

wherein a gas-liquid substance obtained by dissolving an oxide including ferroelectric elements in a supercritical fluid is used.

14. A method of manufacturing a ferroelectric thin film,

wherein a gas obtained by dissolving an oxide including ferroelectric elements in a supercritical fluid is used.

15. A method of manufacturing a ferroelectric thin film,

wherein one of H_2, N_2, Xe, CO_2, C_2H_6, CH_3OH_2, NH_3 and H_2O is used as the supercritical fluid as defined in any one of claims 1, 2, 5 and 6 and 11 to 14.

16. A ferroelectric thin film which has a perovskite structure and is manufactured by the method as defined in any one of claims 1 to 15.

17. A ferroelectric thin film which has a bismuth-layered structure and is manufactured by using the method as defined in any one of claims 1 to 15.

18. A ferroelectric memory device comprising the ferroelectric thin film as defined in claim 16 or 17.

19. A ferroelectric piezoelectric device comprising the ferroelectric thin film as defined in claim 16 or 17.